DOCUMENT RESUME

ED 310 639 FL 018 149

AUTHOR Berney, Tomi D.; Plotkin, Donna
TITLE Bilingual Academic Computer and Technology Oriented Program. Project COM-TECH, 1987-1988.
PUB DATE Jun 89
NOTE 39p.; For related document, see ED 298 777.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Attendance; Basic Skills; *Bilingual Education Programs; *Computer Literacy; *English (Second Language); *Enrichment Activities; Federal Aid; French; Haitian Creole; Haitians; High Schools; *Individualized Instruction; Language Proficiency; *Limited English Speaking; Native Language Instruction; Parent Participation; Program Effectiveness; Program Evaluation; Second Language Instruction; Spanish Speaking; Technology; Uncommonly Taught Languages
IDENTIFIERS Content Area Teaching; *Project COM TECH

ABSTRACT

The Bilingual Computer and Technology Oriented Program (COM-TECH) completed the final year of a 3-year funding cycle. The project's primary goal was to provide bilingual individualized instruction, using an enrichment approach, to Spanish- and Haitian Creole/French-speaking students of varying levels of native and English second-language (ESL) proficiency and academic preparation. In two high schools, 237 Spanish-speaking and 106 Haitian Creole/French-speaking students were served. A bilingual resource and computer center was provided at each school, offering computer instruction, tutoring, career advisement, counseling, and help preparing for exams. The centers also sponsored career- and culture-related trips and acted as exhibition centers for Haitian and Hispanic cultural materials and classwork on career skills and computer literacy. An innovative aspect of the program was a basic skills class for parents. The project met its ESL and attendance objectives, but did not meet the content area objective. Recommendations for program improvement include freeing resource specialists from teaching responsibilities, coordination and exchange of ideas among staff of different schools, removal of latches in one computer/resource center, hiring additional counseling staff, testing students for French language skills, and providing basic French language instruction when needed. (Author/MSE)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

SCOPE OF INTEREST NOTICE
The ERIC Facility has assigned this document for processing to: FL
In our judgment, this document is also of interest to the Clearinghouses noted to the right. Indexing should reflect their special points of view. UD IR

ED310639

OREA Report

EVALUATION SECTION REPORT

BILINGUAL ACADEMIC COMPUTER AND TECHNOLOGY ORIENTED PROGRAM

PROJECT COM-TECH

1987-88

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
R. Tobias
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

FL018149

BEST COPY AVAILABLE

EVALUATION SECTION
John E. Schoener, Chief Administrator
June 1989

EVALUATION SECTION REPORT

BILINGUAL ACADEMIC COMPUTER AND TECHNOLOGY ORIENTED PROGRAM

PROJECT COM-TECH

1987-88

Prepared by
The Bilingual Education Evaluation Unit
Tomi D. Berney, Unit Manager
Donna Plotkin, Evaluation Consultant

New York City Public Schools
Office of Research, Evaluation, and Assessment
Robert Tobias, Director

NEW YORK CITY BOARD OF EDUCATION

Robert F. Wagner, Jr.
President

Dr. Irene H. Impellizzeri
Vice President

Dr. Gwendolyn C. Baker
Amalia V. Betanzos
Dr. Stephen R. Franse
James F. Regan
Edward L. Sadowsky

Bernard Mecklowitz
Chancellor

Dr. Dolores M. Fernandez
Deputy Chancellor for Instruction and Development

Dr. Harvey Robins
Deputy Chancellor for Financial Affairs

Joseph J. Saccente
Chief Executive for Operations

Amy Linden
Chief Executive for School Facilities

It is the policy of the New York City Board of Education not to discriminate on the basis of race, color, creed, national origin, age, handicapping condition, sexual orientation, or sex in its educational programs, activities, and employment policies, as required by law. Any person who believes he or she has been discriminated against should contact his or her Local Equal Opportunity Coordinator. Inquiries regarding compliance with appropriate laws, including Title IX and Section 504, may also be directed to Mercedes A. Nesfield, Director, Office of Equal Opportunity, 110 Livingston Street, Room 601, Brooklyn, New York 11201; or to the Director, Office of Civil Rights, United States Department of Education, 26 Federal Plaza, Room 33-130, New York, New York 10278.

5/22/89

BILINGUAL COMPUTER AND TECHNOLOGY ORIENTED PROGRAM
PROJECT COM-TECH*
1987-88

SUMMARY

- Project COM-TECH was fully implemented. During the 1987-88 school year the students received supplementary instruction in English as a Second Language (E.S.L.), native language arts (N.L.A.), and bilingual content area subjects.

- The project met the E.S.L. and the attendance objectives. It did not meet the content area objective.

The Bilingual Computer and Technology Oriented Program (COM-TECH) completed its final year of a three-year funding cycle under Title VII of the Elementary and Secondary Education Act (E.S.E.A.). Project COM-TECH's primary goal was to provide bilingual individualized instruction, using an enrichment approach, to Spanish- and Haitian Creole/French-speaking students of varying levels of English and native language proficiency and academic preparation. Two hundred and thirty-seven Spanish-speaking students participated in the project at Bushwick High School in Brooklyn, and 106 Haitian Creole/French-speaking students participated at Brandeis High School in Manhattan.

COM-TECH provided the students with a bilingual resource/computer center at both high schools. The centers offered computer instruction, tutoring, career advisement, counseling, and help in preparing for exams. They also sponsored career- and culture-related trips and acted as exhibition centers for Haitian and Hispanic cultural materials and classwork on career skills and computer literacy.

An innovative aspect of the program was the basic skills class for parents. Because Bushwick High School was located in a high crime area, it was considered unsafe for evening classes; the class was given instead at St. Brigid's Church, located nearby. In addition parents could enroll in E.S.L. classes, held two nights a week for Hispanics at St. Brigids and for Haitians at the Holy Name Church.

The Office of Research, Evaluation, and Assessment measured the students' English language proficiency with the Language Assessment Battery [LAB]. A comparison of pretest and posttest scores showed that students at both sites made significant gains.

---

*This summary is based on the final evaluation of the "Bilingual Academic Computer and Technologically Oriented Program (Project COM-TECH) 1987-88" prepared by the OREA Bilingual Education Evaluation Unit.

The project did not provide the data necessary to assess development of native language skills. However, at least 75 percent of the project students passed their N.L.A. courses. Since less than 75 percent of the students received grades of at least 75 in the content area courses, COM-TECH did not meet this objective. The project did not provide data necessary to assess the cultural awareness or parental involvement objectives. The project partially met its staff development objective. The attendance rate of program students was higher than that of mainstream students; therefore, the project met its attendance objective.

The conclusions, based on the findings of this evaluation, lead to the following recommendations should the project continue in another funding cycle:

- Free the resource specialists at both sites from their teaching responsibilities so they can devote all their time to the resource/computer centers.

- Arrange for project staff at both sites to meet and share their experiences and ideas and discuss their problems with each other. Given the constraints of distance, finances, and time, schedule meetings at the central office in the summer, when the resource specialists are there for curriculum development work.

- Remove the lathes cluttering the computer/resource center at Brandeis.

- Consider hiring a full-time bilingual guidance counselor at Bushwick and Brandeis to relieve nonguidance personnel from their present guidance functions. In addition, explore the possibility of hiring a family assistant at Brandeis to act as a liaison between home and school and to help develop part-time jobs for students.

- Test future program students for French language ability and provide a basic French language course for students who require it.

ACKNOWLEDGMENTS

We thank Beth Schlau and Madelyn Anderson for editing, Margaret Scorza for coordinating production, Marbella Barrera for analyzing data, and Kristine Gatti for typing the final report.

TABLE OF CONTENTS

		PAGE
I.	INTRODUCTION	1
	Staff	4
	Community Context	6
	Participating Students	7
II.	EVALUATION FINDINGS: INSTRUCTIONAL ACTIVITIES	11
	English as a Second Language	11
	Native Language Arts	15
	Content Area Subjects	17
III.	EVALUATION FINDINGS: NONINSTRUCTIONAL ACTIVITIES	22
	Attendance	22
	Cultural Awareness and Attitude Towards School	23
	Staff Development	24
	Parental Involvement	25
	Curriculum Development	26
IV.	CONCLUSIONS AND RECOMMENDATIONS	28

LIST OF TABLES

PAGE

TABLE 1: Number of Program Students by Age and Grade.....10

TABLE 2: Pretest/Posttest Differences on the Language Assessment Battery, by Grade and School..... 14

TABLE 3: Students' Passing Rates in Native Language Arts Courses..... 18

TABLE 4: Students' Passing Rates in Content Area Courses... 21

I. INTRODUCTION

In the 1987-88 school year the Bilingual Academic Computer and Technologically Oriented Program (Project COM-TECH) completed its final year of a three-year Title VII funding cycle. Its primary objective was to provide individualized bilingual instruction, using an enrichment approach, to limited English proficient (LEP) students who had widely varying English and native language abilities and levels of academic preparedness. In addition, the project aimed to instill in its students a sense of pride in their native cultures through exposure to their arts, histories, and languages.

The two participating schools were Bushwick High School, located in an impoverished, high-crime area of Brooklyn; and Louis D. Brandeis High School, located in Manhattan's Upper West Side. At Bushwick, COM-TECH served 237 Hispanic students, mainly from Puerto Rico and the Dominican Republic. At Brandeis, the project served 106 Haitians.

At Bushwick, Title VII funds provided supplementary instruction in English as a second language (E.S.L.), native language arts (N.L.A.), bilingual tutoring, computer training, and career orientation. At Brandeis, students received instruction in E.S.L., N.L.A., global history (in French and English), and mathematics (in Haitian Creole), and tutoring. The project also offered basic skills classes on a regular basis to parents of project students at both sites. Brandeis introduced an after-school accent-correction and speech program.

A key element of Project COM-TECH was a resource/computer center at each site. Title VII supplied monies for the two staff members, computer equipment, and curriculum materials for each center. The staff at the resource centers provided training in computer use, tutoring, career advising, and counseling. In addition, they planned and implemented cultural activities and trips. The centers exhibited Haitian and Hispanic cultural materials and classwork on career skills and computer literacy.

Title VII staff at each resource/computer center consisted of a resource specialist and a paraprofessional. Although both resource specialists were to have worked full-time (five periods a day) at the centers, this did not prove possible. The lack of bilingual teachers at Brandeis required the resource specialist there to devote three periods a day to teaching bilingual algebra, French N.L.A., and global history classes; the resource specialist at Bushwick taught two periods per day of mainstream English due to a shortage of those teachers at Bushwick.

The resource/computer center at Bushwick High School was open for computer use every period, including lunch. To assist students, the Title VII paraprofessional was available full-time and the resource specialist was available three periods per day. According to the Title VII paraprofessional, most program students were scheduled to visit the center once a week during their lunch period. Students who needed more intensive remedial help came several times per week or every day. The students kept folders with their work and each had a computer diskette.

The center's staff assisted students with homework projects, reports, and the computer, depending on the desire or expressed need of the student. Although teachers referred students to the center, they did not systematically collaborate with its staff to plan or monitor remedial instruction. However, the center's staff was in the process of setting up its own data base to keep track of students' grades and to identify students who were failing courses or who needed extra help.

According to information provided by project staff, the strength of the resource/computer center was that it gave bilingual students a "place of their own," a feeling of belonging. The major weaknesses were the shortage of space and the lack of Spanish-language software.

At Brandeis, the three computers in the resource center were fully used by program students during their lunch period. Although the room housing the enrichment center was shared with another bilingual program, it was quite large and would have provided sufficient space for both activities had it not been cluttered with several large lathes left over from the room's former use as a machine-shop classroom. Also, the resource specialist and the paraprofessional at Brandeis were forced to divide their time between project-related and classroom activities. Consequently, the resource room was underutilized at this site.

STAFF

At the time of the evaluation visits, the project coordinator had only recently been appointed. She had 17 years' experience in bilingual education.

The resource specialist at Bushwick High School's a former graduate, was appointed on a part-time basis in February 1988 and had been a paraprofessional and teacher at the school for over 11 years.

The resource specialist at Brandeis had a Ph.D. and was bilingual in English and Haitian Creole. He had been a paraprofessional before becoming a resource specialist and had 13 years' experience in education.

The Title VII paraprofessional at Bushwick had worked in the school for the past four years. He was a Bushwick alumnus and was working towards a bachelor's degree in bilingual education.

The Title VII paraprofessional at Brandeis had three years of experience. She was studying for a bachelor's degree in sociology and psychology. She gave program students computer-assisted instruction and assisted in mathematics, social studies, and N.L.A. classes three periods a day.

COM-TECH's on-site staff members were supervised by the schools' principals and the assistant principals (A.P.s) of administration and foreign languages. The Title VII staff worked with a project coordinator, who reported to the program director. The project coordinator was based at the central office and made frequent visits to the schools. Members of the two project

staffs (Brandeis and Bushwick) did not meet with each other.

In addition to giving program students individualized tutoring, computer instruction, guidance, and career counseling, project staff planned and accompanied program students on cultural trips. They provided support to the faculty and nonprogram E.S.L. students in the computer center.

According to the Title VII staff at Brandeis, Project COM-TECH helped students by facilitating their transition to a new culture and school and by alleviating their frustrations with learning a new language. The staff believed that the school should test students for French language ability and should offer a basic French language course when necessary. They also suggested that the program's lunchtime tutoring program should be publicized more by passing out flyers. Students did not always ask for help when they needed it. The mathematics department chairperson claimed that he had never heard of COM-TECH nor was he aware of the existence of the educational enrichment center or its services. Communication may have been impaired because there had been three different resource specialists this year and no bilingual coordinator to act as liaison between the E.S.L. and foreign language and content area departments. The project coordinator said that she was aware of the need for a full-time bilingual coordinator to create a network between departments and the resource center.

The organizational structure at Brandeis was more conducive to interaction between departments. The bilingual coordinator

also worked with the content area chairpersons when she wrote a state grant proposal for Instructional Materials Translation.

Program personnel at Brandeis expressed a desire for a family assistant to act as a liaison with the students' homes and to serve as a part-time job developer for students. Project staff also recommended hiring a full-time Haitian Creole-speaking guidance counselor. According to the project coordinator, guidance services for program students were better than those for mainstream students because there were more personnel involved in the delivery of services.

COMMUNITY CONTEXT

Bushwick High School is located in a deteriorated, impoverished neighborhood with a reputation for violent crime. Program staff said that students frequently carried weapons for self-defense while traveling to and from school. In 1987-88, Bushwick's enrollment of 2,458 included 1,694 Hispanic and 690 black students. The ethnicity of the remaining 764 students was Caucasian, Asian, or American Indian.*

Bushwick's Hispanic population had once been predominantly Puerto Rican, but now it included significant numbers of students from the Dominican Republic and other Spanish-speaking countries. The resource specialist described project students in general as being well prepared in the content areas but with low levels of

---

*Source. Pupil Ethnic Composition Report, Annual School Census, October 1987, Office of Student Information Services, Board of Education of the City of New York.

English proficiency.

Brandeis High School is located on Manhattan's Upper West Side. According to the program director, most of the program students lived in welfare hotels, run-down tenements, or nearby public housing. This year, Brandeis accepted Haitian (but not Hispanic) students "over the counter,"* or on a walk-in basis. This type of enrollment yielded a heterogenous group of students whose academic preparation and abilities varied widely.

This year, Brandeis's enrollment totaled 2,553, of whom 1,460 students were Hispanic and 1,057 were black. The remaining 36 students were either Caucasian or Asian. Forty percent of the students were eligible for the free-lunch program.**

PARTICIPATING STUDENTS

COM-TECH's total enrollment was 343. Of the 275 students for whom data were available, 169 (61 percent) had been in the program for one year or less and 93 (34 percent) had been enrolled for two years. The remainder had been in the program for three years.

Most COM-TECH students came from Haiti (31 percent). The next-highest population was from the Dominican Republic (29 percent), then Puerto Rico (18 percent), the United States (seven

---

*Over-the-counter admissions are students who enroll in high school without having attended junior high school in New York.

**1988-89 Poverty Components Listing, Office of Student Information Services, Board of Education of the City of New York, June 29, 1988.

percent), and Ecuador (six percent).

According to the resource specialist at Brandeis, most program students were recent arrivals to the United States. The parents of some students had sent them to stay with relatives in New York so that their education would not be interrupted by the political turmoil engulfing Haiti. In other cases, parents had come first and had been here one or two years before becoming financially secure enough to bring in their children. Lack of parental control and/or financial support sometimes led the youngsters to drop out of school; consequently, they were several years behind grade level. These students frequently experienced intense intrafamilial conflict and many were eager to drop out and get a full-time job to enable them to rent an apartment of their own.

The project coordinator and the guidance counselors at both sites reported that the migration patterns of both the Haitian and Hispanic ethnic groups often led to conflicts for program students. A large number of program students had come to New York to live with their fathers' new families. A student's arrival was not always welcome. Students were often pressured to find part-time employment, at the very least, and there were also problems of child abuse.

Table 1 presents the distribution of Project COM-TECH students by age and grade. The 276 students for whom the project provided data were fairly equally divided among the four grades. Overall, 62 percent of the students were overage for their grade

placement. Brandeis had the higher percentage of overage students (76 percent as compared to Bushwick's 55 percent).

TABLE 1

Number of Program Students by Age and Grade

Age	Grade 9	Grade 10	Grade 11	Grade 12	Total
13	1				1
14	7				7
15	21	3	1		25
16	22	19	4	1	46
17	17	23	16	9	65
18	7	13	14	22	56
19	4	10	19	24	57
20		2	2	11	15
21		1	1	2	4
TOTAL	79	71	57	69	276*

All Overage Students

Number	50	49	36	37	172
Percent	63.3	69.0	63.2	53.6	62.3

Overage Students at Bushwick High School

Number	44	21	13	18	96
Percent	62.0	58.3	54.2	40.0	54.5

Overage Students at Brandeis High School

Number	6	28	23	19	76
Percent	75.0	80.0	69.7	79.2	76.0

Note: Numbers in bold area reflect expected age range for grade.

*Data were missing for 67 students.

- The majority of program students were overage for their grade placement.
- Brandeis had a higher percentage of overage students than did Bushwick.

II. EVALUATION FINDINGS: INSTRUCTIONAL ACTIVITIES

The Office of Research, Evaluation, and Assessment (OREA) evaluated the Bilingual Computer and Technology Oriented Program by studying test results, examining records, interviewing school and project personnel, and observing classes. The project proposed instructional objectives in E.S.L., N.L.A., and content area subjects.

ENGLISH AS A SECOND LANGUAGE

- As a result of participation in the program, students will make statistically significant gains in English language proficiency.

Implementation

Program students could take E.S.L. reading and writing courses at the beginning, intermediate, and advanced levels at both sites. Bushwick was developing a new transitional course which would reflect an improved articulation between the E.S.L. and English departments. Students at the beginning and intermediate levels received three periods of E.S.L. instruction per day; students at the advanced level received two. An OREA field consultant observed advanced-level E.S.L. courses at both sites.

There were seven students present in the level 5 E.S.L. class at Bushwick. The classroom had graffiti on the walls and the desks. A ruckus in the hall outside the classroom contributed to an atmosphere of disorder. The theme of the

lesson was "what would you rather do?" The teacher used a review of exercises from the text to lead into a brief discussion of the different ethnic minorities living in New York City. The teacher then asked the class, "What would you rather be a _____ or a _____?", filling in the blanks with examples of job titles and calling on individuals to respond with their preferences. After each answer she asked the student, "Why?". She encouraged the students to respond in complete sentences. After all the students had a chance to respond, the teacher asked them to open their texts to an exercise, and she called on individuals to read and answer the questions aloud.

There were eleven students present in the advanced business-oriented E.S.L. class observed at Brandeis. The students worked quietly on an exercise that entailed completing sentences with information about their past job experiences. The teacher circulated around the room, assisting individual students. When all the students had completed the assignment, he asked for volunteers to write their answers on the blackboard and to read aloud the completed sentences from the board. The teacher then asked other class members for corrections. Subsequently, the teacher spoke about the past and present job experiences of the students, which had been the topic of a composition they had written the day before.

Outcomes

The Language Assessment Battery (LAB) assessed students' achievement in English language skills.* An OREA data analyst computed a correlated t-test on students' N.C.E. scores.** The t-test determined whether the difference between pretest and posttest mean scores was significantly greater than would be expected from chance variation alone. Analysts computed effect size to indicate educational meaningfulness.*** (See Table 2.)

Of the students who were reported to be taking E.S.L. classes, the project provided complete data for 117. Students at Brandeis achieved a mean gain of 6.1 N.C.E.s, while Bushwick's gain was 2.7 N.C.E.s. Both were statistically significant ($p < .05$). It is worth noting that t-tests are strongly influenced by

---

*The Language Assessment Battery (LAB) was developed by the Board of Education of the City of New York to measure the English-language proficiency of nonnative speakers of English in order to determine whether their level of English proficiency is sufficient to enable them to participate effectively in classes taught in English. Students scoring below the twenty-first percentile on the LAB are entitled to bilingual and E.S.L. services.

**Raw scores were converted to N.C.E. scores, which are normalized standard scores. They have the advantage of forming an equal interval scale so that scores and gains can be averaged. For the norming population, N.C.E.s have a mean of 50, a standard deviation of approximately 20, and a range from one to 99. Scores can be compared to the norming population.

***The effect size, developed by Jacob Cohen, is a ratio of the mean gain to the standard deviation of the gain. This ratio provides an index of improvement in standard deviation units irrespective of the size of the sample. Effect size (E.S.) is interpreted to indicate educational meaningfulness. An E.S. of .80 is thought to be highly meaningful, while one of .20 is considered to be only slightly so.

TABLE 2

Pretest/Posttest N.C.E. Differences on
the Language Assessment Battery, by Grade and School

Grade	Number of students	Pretest Mean	Pretest S.D.	Posttest Mean	Posttest S.D.	Difference Mean	Difference S.D.	t Value	Effect Size
9	41	10.3	11.4	13.8	12.6	3.5	10.7	2.10*	.33
10	37	9.1	11.1	12.4	9.6	3.3	9.9	2.00*	.10
11	24	13.0	8.8	17.6	14.9	4.6	11.0	2.06*	.42
12	13	18.3	10.4	22.1	14.1	3.8	9.7	1.41	.39
TOTAL	117"	11.6	11.1	15.5	13.0	3.9	10.3	3.98*	.37
School									
Brandeis	39	7.3	7.7	13.3	13.2	6.0	11.1	3.42*	.55
Bushwick	78	13.9	11.9	16.5	12.8	2.6	9.8	2.41*	.28

*$p < .05$

"Total includes two students for whom grade level information was missing.

- Overall, students made statistically significant gains on the LAB.

the size of the sample, which explains why a gain of 3.8 for 13 students in twelfth grade is not significant, while a gain of 2.7 made by 78 students at Bushwick as a whole is significant.

Project COM-TECH met its instructional objective for E.S.L. The effect size for the total sample was .37, which suggests little educational meaningfulness.

NATIVE LANGUAGE ARTS

- Seventy-five percent of the Spanish-dominant participants will demonstrate a significant increase in Spanish-language achievement as indicated by significant improvement at the .05 level of statistical significance when results of La Prueba de Lectura are analyzed using a correlated t-test.

- Seventy-five percent of the Haitian Creole-dominant participants will demonstrate a significant increase in native language achievement as indicated by significant improvement at the .05 level of statistical significance when results of a teacher-made instrument are analyzed using a correlated t-test.

Implementation

At both Brandeis and Bushwick, the A.P. for foreign languages was in charge of native language arts instruction. At Brandeis, to satisfy the requests of students and their parents, the native language was considered to be French rather than Haitian Creole despite the fact that most of the students had, at best, only a rudimentary knowledge of it. The resource specialist offered one class each semester of N.L.A. instruction in a combination of French and Haitian Creole, using, for the

most part, materials he had developed himself with the assistance of a Haitian paraprofessional.

Bushwick offered seven levels of N.L.A. and an advanced placement literature class with both mainstream and project students enrolled. The resource specialist at Brandeis taught one N.L.A. class each semester. This class combined French levels 3 and 4.

A field consultant observed this level 3/4 French N.L.A. class at Brandeis. Ten students were present. The aim of the lesson was to identify and use the conditional tense of certain verbs. The teacher began the class by asking a student to read aloud a poem that he had distributed. He asked the class to read five questions to themselves, then called on students to answer them. He introduced the conditional tense by asking students how and when it was used, reviewed verb endings for the different subjects, and asked the class to construct sentences employing the conditional. Volunteers wrote their answers on the blackboard. Finally, the teacher handed out a sheet of exercises and asked for volunteers to supply the correct verb form in the conditional tense.

The lesson was highly structured and all students actively participated. While the teacher used French exclusively as the language of instruction, several students who had little background in French spoke in Haitian Creole.

Outcomes

Project COM-TECH did not provide any pre- or posttest data on either La Prueba de Lectura or a teacher-made Haitian Creole instrument. Thus, OREA could not assess achievement of the objective as proposed. However, the project did provide students' passing rates in the N.L.A. courses. At least 75 percent of the students achieved a passing grade of 65 percent or more in both semesters and at both sites (see Table 3).

CONTENT AREA SUBJECTS

- At least 75 percent of the students enrolled in mathematics, science, social studies, and business/vocational courses will score at or above the 75 percent passing criterion each semester.

Implementation

Bushwick appeared to have an adequate number of bilingual teachers in all subject areas, including mathematics and science, the two subjects where the citywide shortage of bilingual teachers has been most severe. Bushwick offered bilingual global history, American history, and government in social studies; general science, biology, and human biology in science; and fundamentals of mathematics, sequential mathematics, Regents Competency mathematics, and mathematics labs. Bushwick project students could also take bilingual keyboarding and word processing. COM-TECH students at Brandeis could take bilingual algebra, global history, and American history. The project resource specialist, with the assistance of the Title VII paraprofessional, taught the algebra and global history courses

TABLE 3

Students' Passing Rates in
Native Language Arts Courses

School (Language)	Fall		Spring	
	Number of Students	Percent Passing	Number of Students	Percent Passing
Brandeis (French)	35	91.4	29	93.1
Bushwick (Spanish)	135	88.9	106	75.5
TOTAL	170	89.4	135	79.3

- Students performed well in N.L.A. courses. At least 75 percent passed their courses.

using a combination of French and Haitian Creole. In addition, a social studies teacher taught American history in French.

Twenty-three students attended the French/Haitian Creole bilingual global history II class at Brandeis. The aim of the lesson was to understand the factors behind the long march in China. The teacher wrote three review questions on the board in French and asked the class to write the answers in their notebooks. After ten minutes, he called on several volunteers to read their answers aloud. He then handed out mimeographed materials in French. He asked volunteers to read sections of a passage aloud and summarize the content after each reading. After a brief discussion, the students wrote the answers to three questions, and the teacher called on volunteers to read their answers and to discuss the material. The teacher wrote on the blackboard in French and addressed the class in both French and Haitian Creole. While most of the students appeared to understand spoken French, they usually spoke Haitian Creole. The teacher's style was somewhat formal and the lesson was highly structured; the class participated in an animated fashion.

The teacher told the OREA consultant that he believed it would be useful to students with weak backgrounds in French to take an N.L.A. class in Haitian Creole so that they could learn to read and write in that language. He also indicated that towards the end of the course he taught basic concepts in English to prepare students for mainstreaming.

Thirteen students were present in the Spanish bilingual general science II class at Bushwick. The aim of the lesson was to review a corrected exam on forms of energy. The teacher asked for volunteers to read the questions and give the correct answers. After each question and answer the teacher elaborated on the principle or concept involved and called on students to answer related questions. All the students had an opportunity to participate either by asking or answering questions.

Outcomes

Overall, the project did not meet the proposed objective that 75 percent of the students would achieve a grade of 75 in content area courses. (See Table 4.) However, had the passing criterion been 65 percent (as it is for most New York City high school courses) the objective would have been achieved in social studies and in business/vocational courses.

TABLE 4

Students' Passing Rates in Content Area Courses

School	Area	Fall		Spring		TOTAL	
		Number of Students	Percent Passing*	Number of Students	Percent Passing*	Number of Students	Percent Passing*
Brandeis	Mathematics	68	39.7	53	54.7	121	48.8
	Science	40	32.5	50	38.0	90	35.6
	Social Studies	82	46.3	103	59.2	185	53.5
	Vocational	50	54.0	54	35.2	104	53.8
Bushwick	Mathematics	138	18.8	105	13.3	243	16.5
	Science	62	25.8	49	22.4	111	24.3
	Social Studies	150	32.0	102	27.5	252	30.2
	Vocational	41	68.3	53	41.5	94	53.2
TOTAL	Mathematics	206	25.7	158	27.2	364	26.4
	Science	102	28.4	99	30.3	201	29.4
	Social Studies	232	37.1	205	43.4	437	40.0
	Vocational	91	60.4	107	38.3	198	48.5

*Passing grade was established at 75 percent.

- Less than 75 percent of the students achieved grades of at least 75 in mathematics, social studies, science, or vocational subjects.

III. EVALUATION FINDINGS: NONINSTRUCTIONAL ACTIVITIES

The Bilingual Academic Computer and Technologically Oriented Program proposed noninstructional objectives in attendance, cultural awareness, attitude towards school, staff development, and parental involvement.

ATTENDANCE

- As a result of participation in the program, students' attendance will be significantly higher than the attendance of mainstream students.

The Bushwick site used a computerized system to keep track of students' programs, grades, and attendance. Students with poor attendance records were contacted by Project COM-TECH staff members. The resource center at Brandeis also monitored students' attendance and contacted the parents or guardians of students with excessive absences. However, there was seldom a need to initiate such contacts because project students had a very high attendance rate. Dropping out, on the other hand, was a very real danger. Project staff members said they made family visits to try to help resolve problems and keep the students in school.

Since the school's attendance rate included the attendance of program students, the OREA data analyst determined statistical significance between program and school attendance through the

application of a z-test for the significance of a proportion.* This procedure tests whether the difference between one proportion (the program's attendance) and a standard proportion (the school's attendance) is greater than what can be expected by chance variation.

The attendance rate of program students at Bushwick High School was 88 percent, 15 percentage points higher than the schoolwide attendance of 73 percent. At Brandeis, the attendance rate for program students, 92 percent, was 11 percentage points higher than the schoolwide rate of 81 percent. The z-test results (z=4.2 and 2.5, respectively) indicated that the differences in attendance rates were statistically significant ($p < .05$). Thus, the program achieved its attendance objective.

CULTURAL AWARENESS AND ATTITUDE TOWARD SCHOOL

- Seventy-five percent of all target students will demonstrate an improvement in attitude toward their heritage as indicated by results on an appropriate Language Cultural Heritage Attitude Scale, tabulating growth from pre- to posttesting and ascertaining the percentage of students gaining one scale point or more on a five-point scale.

- Seventy-five percent of all target students will demonstrate an improvement in attitude toward school as indicated by results on a five-point scale inventory to measure interest in continuing education beyond their present grade.

Promoting cultural pride, improving attitude toward school, and enhancing academic interest were high priorities for Project

---

*Bruning, J.L. and Kintz, B.L.; Computational Handbook of Statistics (Glenview, IL: Scott, Foresman and Company, 1968).

COM-TECH. At both Bushwick and Brandeis, the resource/computer centers, which provided computers for students' use and organized special programs and trips in cooperation with COM-TECH's central office, were particularly important in realizing these priorities.

In addition to computer equipment and a variety of software, the resource/computer center at Bushwick High School also had a small library of Spanish literature, reference books, and college-orientation materials. It offered project students a schedule of trips and other extracurricular activities. Among the places visited were Kennedy Airport, Hunter College, and Temple University in Philadelphia.

Bushwick program students also attended the school's College Day at which representatives of various colleges, career schools, and the armed services provided students with information. Program students at Brandeis took one trip during the school year, to Washington D.C.

OREA could not assess the objectives of cultural awareness and attitudes toward school as the project did not provide the required data.

STAFF DEVELOPMENT

- All project staff members will enroll in at least one teacher education course each semester.

This year, the Title VII paraprofessional at Brandeis took one sociology course at Hunter College each semester, and the Title VII paraprofessional at Bushwick took a course entitled

"Introduction to Bilingualism" in the fall and an algebra course in the spring at La Guardia Community College. As the two resource specialists did not enroll in any courses, the project did not meet its staff development objective.

Each site held a number of staff development activities at both sites. Resource specialists, teachers, and paraprofessionals at both schools participated in workshops on data collection, materials evaluation and microcomputers. Other workshops provided training for newly-hired staff, computer-assisted instruction, and software evaluation.

PARENTAL INVOLVEMENT

- At least 30 percent of the students' parents will participate in open school meetings each year.

At Bushwick High School only 17 parents (less than 10 percent) attended during Open School Week. Low attendance at open school meetings may have been due to a combination of several factors: the neighborhood around Bushwick was considered unsafe after 4 p.m., many parents worked at night, and it is possible that parents might have avoided contact with school officials because of their illegal immigration status. Project COM-TECH parents attended evening basic skills classes at St. Brigid's Church, a well-known community center located in a more secure part of the neighborhood. The project provided no data on the number attending.

Parents of students at both sites attended a variety of activities and meetings which presented information on Title VII

regulations, the rights of students, the responsibilities of parents, regulations for graduation, high school rules and regulations, financial aid for college, helping their children in school, and career choices. In addition, parents of Brandeis students attended Bushwick's College Day, the Citywide High School Fair, the C. Melvin Patrick Career Fair, Haitian Parents' Day, and the International Festival and Food Fair. Parents of Bushwick students attended the Citywide Hispanic Parents' Conference. Again, the project did not provide data on the number of parents attending.

Parents of program students at both sites could take one of 20 E.S.L. classes per semester. These were held two nights per week for Hispanics at St. Brigid's Church and for Haitians at Holy Name Church.

OREA could not assess the parental involvement objective as proposed because Project COM-TECH did not provide attendance data.

CURRICULUM DEVELOPMENT

Although not proposed as a project objective, the resource specialists at both sites developed curricula in a number of subjects. The resource specialist at Brandeis adapted and translated social studies and science curricula into French. The resource specialist at Bushwick was in the process of translating computer programs from English to Spanish. The previous resource specialist at Bushwick had assembled a large collection of materials and textbooks on science, social studies, and mathematics for developing Spanish-language curricula that would comply with

New York State Regents regulations. Project staff participated in the Title VII Central Program Office's development of curricula during the summer of 1987.

IV. CONCLUSIONS AND RECOMMENDATIONS

Project COM-TECH served 343 students at Bushwick and Brandeis High Schools. It provided supplementary instruction in E.S.L., N.L.A., and business/vocational courses. It met its objectives in E.S.L. and attendance. OREA was unable to determine whether Project COM-TECH met its objectives in N.L.A., cultural awareness, attitudes toward school, or parental involvement. It did not meet its objectives in content area subjects or staff development.

The chief strengths of Project COM-TECH at both sites were its resource/computer center and a staff which had been connected to the participating schools for many years. They played an important role in easing the transition of project students to their American environment.

At both schools, the resource/computer center was "home base" for project students. The resource/computer center at the Bushwick High School was effective in attracting students, developing their cultural pride and desire to succeed academically, and providing computer training.

Although the project director visited both sites frequently, project staff, were isolated from each other and did not interact.

The conclusions, based on the findings of this evaluation, lead to the following recommendations should the project continue in another funding cycle:

- Free the resource specialists at both sites from their

teaching responsibilities so they can devote all their time to the resource/computer centers.

- Arrange for project staff at both sites to meet and share their experiences and ideas and discuss their problems with each other. Given the constraints of distance, finances, and time, schedule meetings at the central office in the summer, when the resource specialists are there for curriculum development work.

- Remove the lathes cluttering the computer/resource centers at Brandeis.

- Consider hiring a full-time bilingual guidance counselor at Bushwick and Brandeis to relieve nonguidance personnel from their present guidance functions. In addition, explore the possibility of hiring a family assistant to act as a liaison between home and school and to help develop part-time jobs for students.

- Test future program students for French language ability and provide a basic French language course for students who require it.